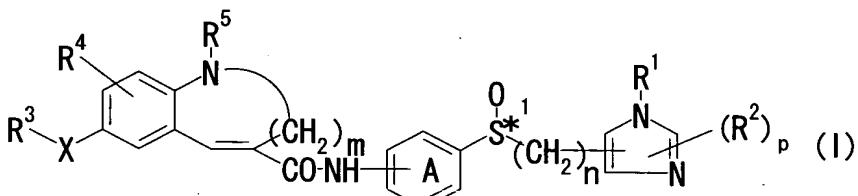


CLAIMS

1. A process for preparing an optically active compound represented by the formula (I):



5

wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

R³ represents an optionally substituted 5- or 6-membered ring; R⁴ represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted lower alkoxy group or a halogen atom;

R⁵ represents a hydrogen atom, an optionally

substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted sulfonyl group, an esterified or amidated carboxyl group or an optionally substituted acyl group;

5 X represents a bond or a divalent group containing a linear part constituted of 1 to 4 atoms;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

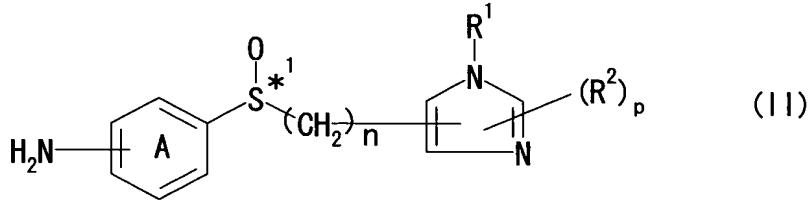
10 m is an integer of 1 to 5;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

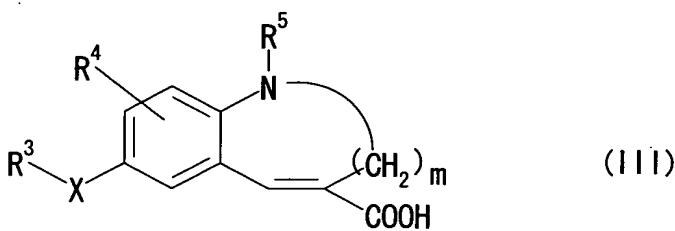
*¹ represents an asymmetric center,

15 or a salt thereof, which comprises reacting an optically active compound represented by the formula (II):



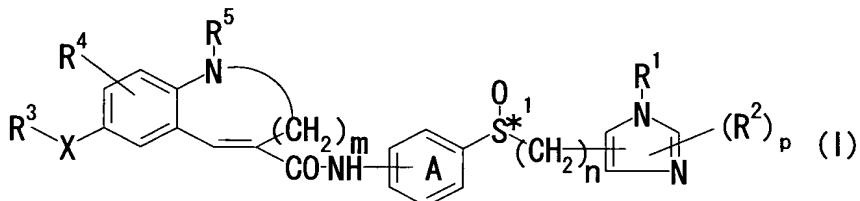
wherein each symbol is as defined above,

or a salt thereof, with a compound represented by the
20 formula (III):



wherein each symbol is as defined above, a salt thereof, or a reactive derivative thereof.

2. A process for preparing an optically active compound represented by the formula (I):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

R³ represents an optionally substituted 5- or 6-

membered ring;

R^4 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted lower alkoxy group or a halogen atom;

5 R^5 represents a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted sulfonyl group, an esterified or amidated carboxyl group or an optionally substituted acyl group;

10 X represents a bond or a divalent group containing a linear part constituted of 1 to 4 atoms;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

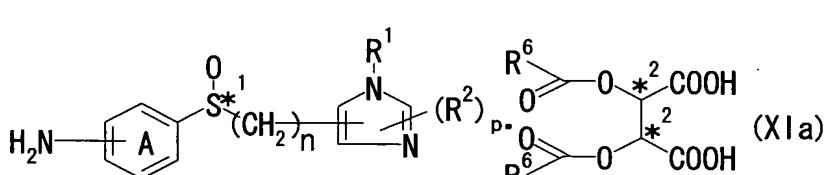
15 m is an integer of 1 to 5;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

*1 represents an asymmetric center,

20 or a salt thereof, which comprises reacting an optically active compound represented by the formula (XIa):



wherein R^6 represents a methyl group, a phenyl group,

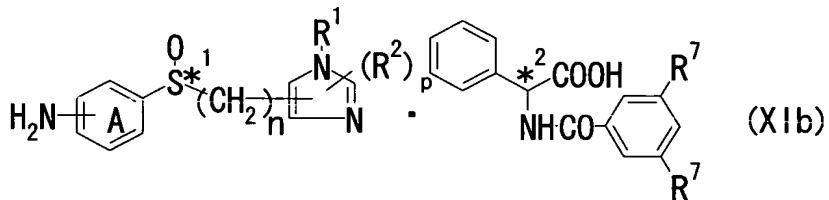
a 4-methylphenyl group or a α -naphthyl group;

$*^2$ represents an asymmetric center; and

the other symbols are as defined above,

or an optically active compound represented by the formula

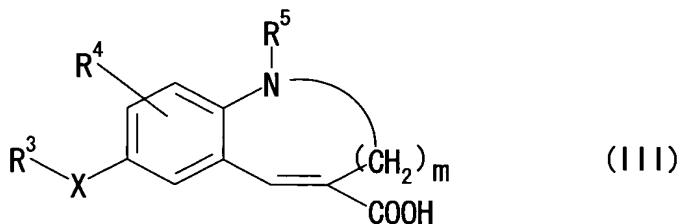
5 (XIb) :



wherein R^7 represents a hydrogen atom, a chlorine atom or a nitro group; and

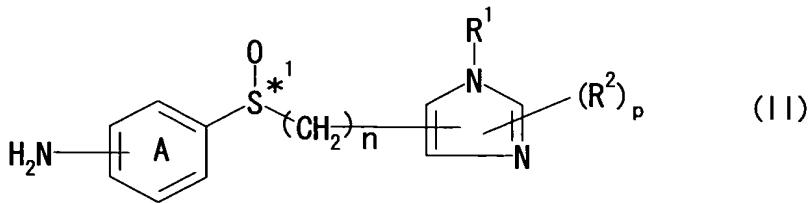
the other symbols are as defined above,

10 with a compound represented by the formula (III):



wherein each symbol is as defined above, a salt thereof or a reactive derivative thereof.

3. An optically active compound represented by the
15 formula (II):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

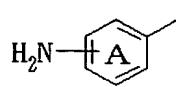
n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

*¹ represents an asymmetric center, or a salt thereof.

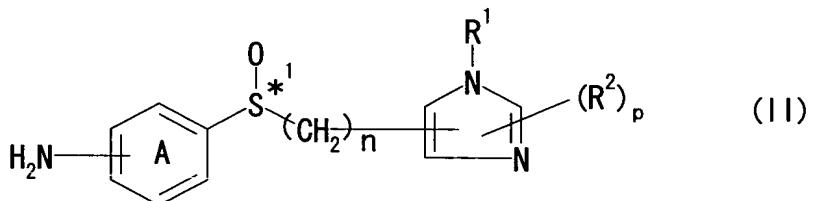
4. The optically active compound according to claim 3, wherein R¹ and R² each represents a C₁₋₆ alkyl group; and n represents 1 or 2, or a salt thereof.

5. The optically active compound according to claim 3, wherein R¹ represents a C₁₋₆ alkyl group; p represents 0; n represents 1; and



represents , or a salt thereof.

6. A process for preparing an optically active compound represented by the formula (II):



5 wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an 10 optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

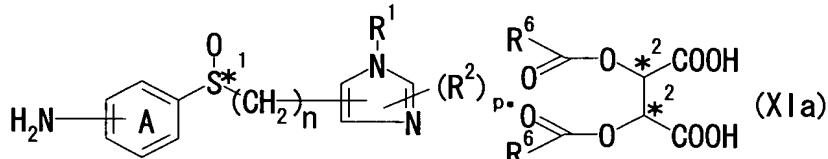
15 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

20 n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

*¹ represents an asymmetric center,

or a salt thereof, which comprises subjecting an optically active compound represented by the formula (XIa):



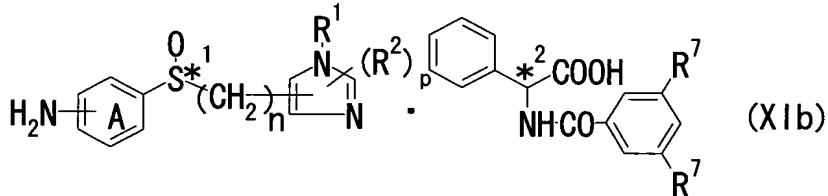
5

wherein R⁶ represents a methyl group, a phenyl group, a 4-methylphenyl group or a α -naphthyl group;

*² represents an asymmetric center; and

the other symbols are as defined above,

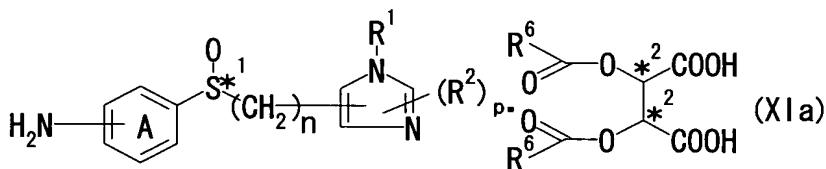
10 or an optically active compound represented by the formula (XIb):



wherein R⁷ represents a hydrogen atom, a chlorine atom or a nitro group; and

15 the other symbols are as defined above,
to a metathesis reaction.

7. An optically active compound represented by the formula (XIa):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

5 R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

10 R⁶ represents a methyl group, a phenyl group, a 4-methylphenyl group or a α -naphthyl group;

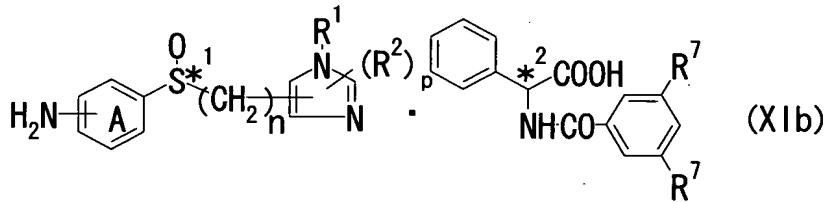
15 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

20 n represents an integer of 0 to 3;

 p represents an integer of 0 to 2; and

 *¹ and *² each represents an asymmetric center, or an optically active compound represented by the formula

(XIb) :

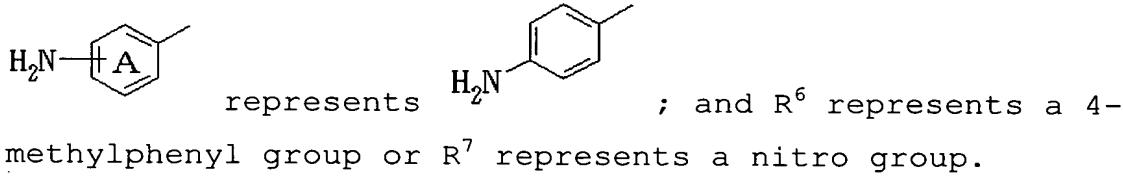


wherein R⁷ represents a hydrogen atom, a chlorine atom or a nitro group; and

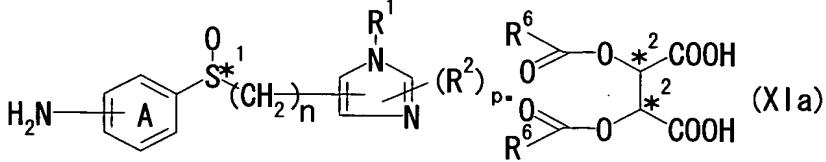
5 the other symbols are as defined above.

8. The optically active compound according to 7,
wherein R¹ and R² each represents a C₁₋₆ alkyl group; n
represents 1 or 2; and R⁶ represents a 4-methylphenyl group
or R⁷ represents a nitro group.

10 9. The optically active compound according to 7,
wherein R¹ represents a C₁₋₆ alkyl group; p represents 0; n
represents 1;



15 10. A process for preparing an optically active compound represented by the formula (XIa):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally

substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

R⁶ represents a methyl group, a phenyl group, a 4-methylphenyl group or a α -naphthyl group;

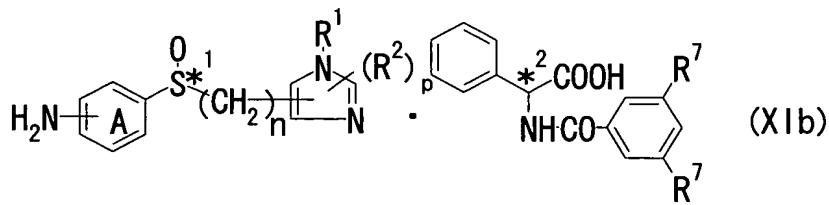
the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

*¹ and *² each represents an asymmetric center,

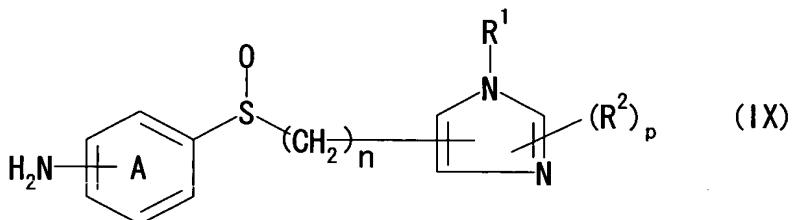
or the formula (XIb) :



wherein R⁷ represents a hydrogen atom, a chlorine atom

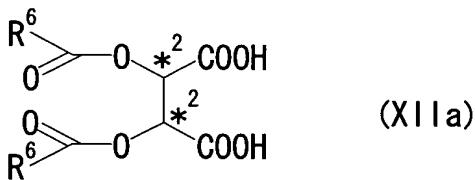
or a nitro group; and

the other symbols are as defined above,
which comprises subjecting a compound represented by the
formula (IX):



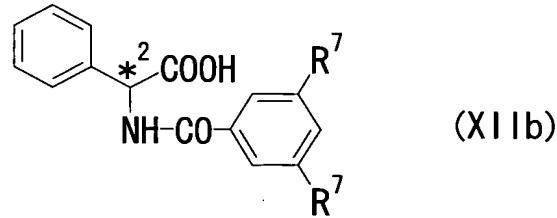
5

wherein each symbol is as defined above,
or a salt thereof, to optical resolution with an optically
active compound represented by the formula (XIIa):



10

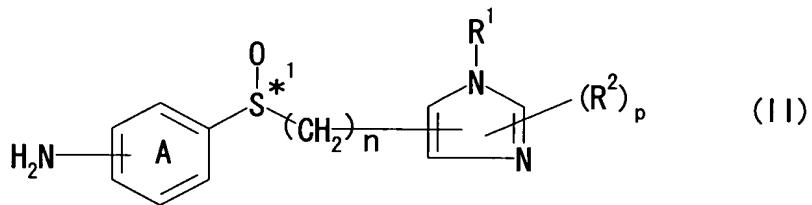
wherein each symbol is as defined above,
or an optically active acid represented by the formula
(XIIb):



wherein each symbol is as defined above.

15

11. A process for preparing an optically active
compound represented by the formula (II):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

5 R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

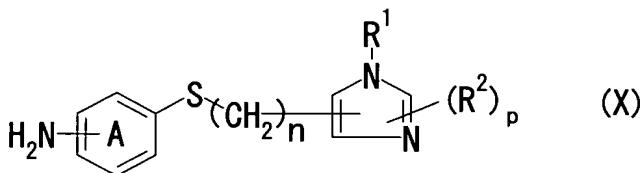
10 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

15 n represents an integer of 0 to 3;

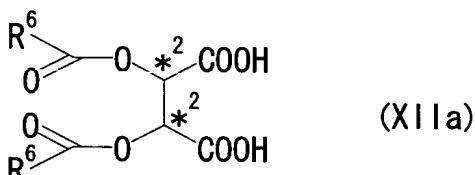
 p represents an integer of 0 to 2; and

20 *¹ represents an asymmetric center,

or a salt thereof, which comprises oxidizing a compound represented by the formula (X):



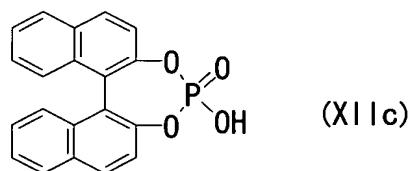
wherein each symbol is as defined above,
 or a salt thereof in the presence of an optically active
 compound represented by the formula (XIIa):



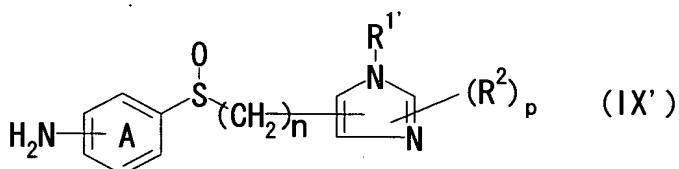
5

wherein R^6 represents a methyl group, a phenyl group,
 a 4-methylphenyl group or a α -naphthyl group; and
 $*^2$ represents an asymmetric center,

or an acid which is optically active with respect to axial
 asymmetry, and represented by the formula (XIIc):



12. A compound represented by the formula (IX'):



wherein R^1' represents an optionally substituted
 aliphatic hydrocarbon group or an optionally substituted
 aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano

group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that

5 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

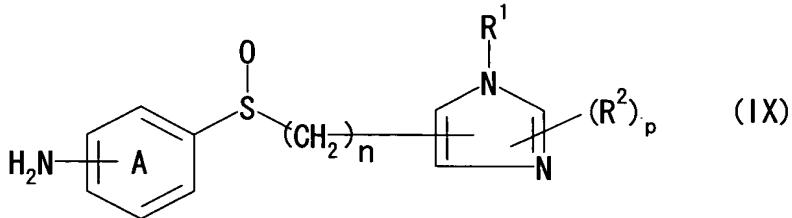
10 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

15 or a salt thereof.

13. A process for preparing a compound represented by the formula (IX):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano

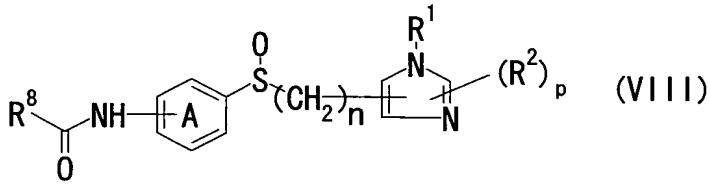
group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that
 5 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;
 10

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

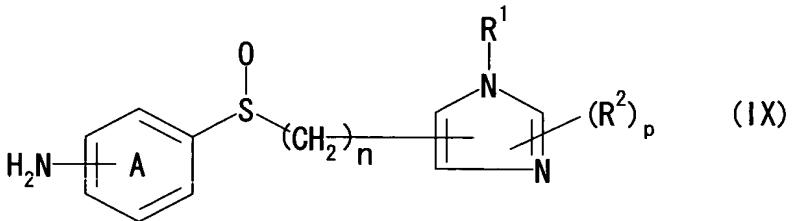
15 or a salt thereof, which comprises subjecting a compound represented by the formula (VIII):



wherein R⁸ represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group; and
 20

the other symbols are as defined above,
or a salt thereof, to a deprotection reaction.

14. A process for preparing a compound represented by
the formula (IX):



5

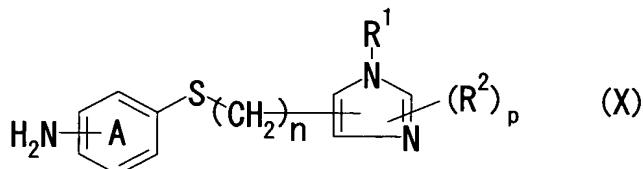
wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

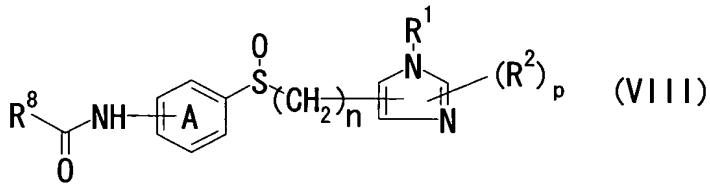
n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,
 or a salt thereof, wherein a compound represented by the formula (X) :



5 wherein each symbol is as defined above,
 or a salt thereof is oxidized.

15. A compound represented by the formula (VIII):



10 wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

15 R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

20 R⁸ represents a hydrogen atom, an optionally

substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -
OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an
5 optionally substituted aralkyl group;

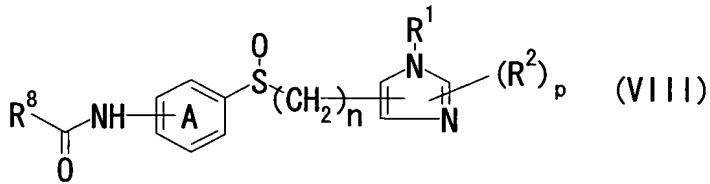
the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

10 n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

or a salt thereof.

16. A process for preparing a compound represented by the formula (VIII):



15

wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

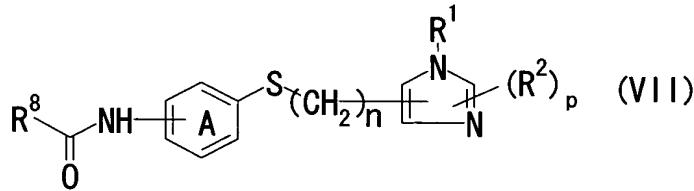
20 R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that

may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

5 R⁸ represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an 10 optionally substituted aralkyl group;

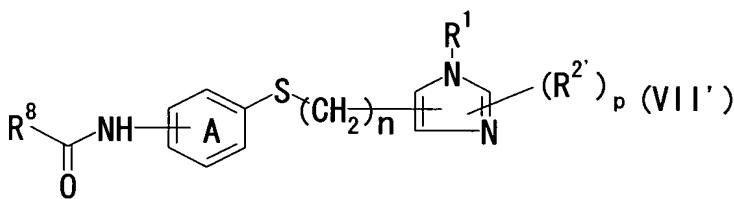
the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

15 n represents an integer of 0 to 3; and
p represents an integer of 0 to 2,
or a salt thereof, which comprises oxidizing a compound represented by the formula (VII):



20 wherein each symbol is as defined above,
or a salt thereof.

17. A compound represented by the formula (VII'):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

5 $\text{R}^{2'}$ represents a halogen atom, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that
10 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

15 R^8 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -
OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group;

20 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy

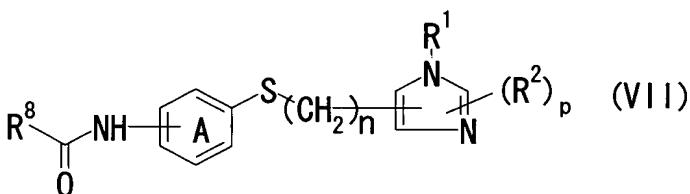
group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

or a salt thereof.

5 18. A process for preparing a compound represented by
the formula (VII):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

10 R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

15 R⁸ represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -

OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group;

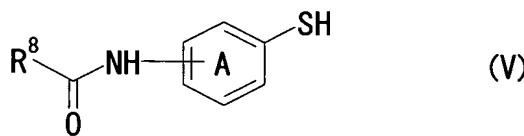
the ring A represents a benzene ring which may be

5 substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

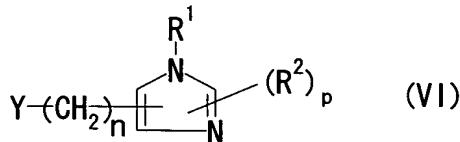
10 or a salt thereof, which comprises reacting a compound represented by the formula (V):



wherein each symbol is as defined above,

or a salt thereof, with a compound represented by the

15 formula (VI):



wherein Y represents a halogen atom or a group

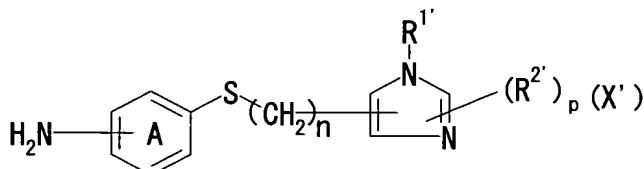
represented by the formula -OSO₂-R⁹ wherein R⁹ represents a lower alkyl group or an optionally substituted aryl group;

20 and

the other symbols are as defined above,

or a salt thereof.

19. A compound represented by the formula (X'):



5 wherein R^{1'} represents an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

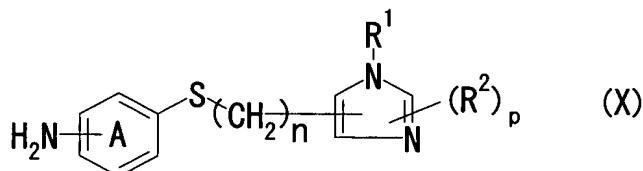
10 R^{2'} represents a halogen atom, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an 15 optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

20 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

 n represents an integer of 0 to 3; and

 p represents an integer of 0 to 2,
or a salt thereof.

20. A process for preparing a compound represented by the formula (X):



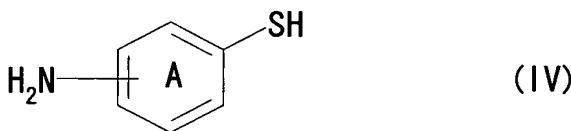
wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

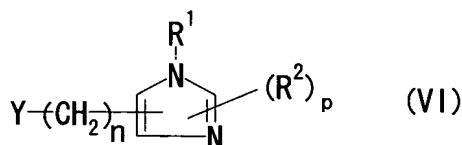
the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,
or a salt thereof, which comprises reacting a compound represented by the formula (IV):



wherein the ring A is as defined above,
or a salt thereof, with a compound represented by the
formula (VI):



wherein Y represents a halogen atom or a group
represented by the formula $-\text{OSO}_2-\text{R}^9$ wherein R^9 represents a
lower alkyl group or an optionally substituted aryl group;
and

10 the other symbols are as defined above,
or a salt thereof.